

Look for these questions to be on the test!

Part A

1) Can you add and subtract?

$$5 + (-2) =$$

$$5 - 2 = 3$$

$$-2 + 8 = 6$$

$$-4 - (-9) =$$

$$-4 + 9 = 5$$

$$2 - 7 = -5$$

$$3 - (-1) =$$

$$3 + 1 = 4$$

2) How about multiply and divide?

$$(-2)(3) = -6$$

$$(-5)(-3) = +15$$

$$\frac{18}{-3} = -6$$

$$\frac{-21}{-3} = +7$$

3) Order of Operations

$$\begin{aligned} & 2^2 - 4(5+1)^2 \\ &= 2 \times 2 - 4(6)^2 \\ &= 4 - 4(36) \\ &= 4 - 144 \\ &= -140 \end{aligned}$$

$$\begin{aligned} & 4^2 \div (-12+10) \\ &= 4 \times 4 \div (-12+10) \\ &= 16 \div -2 \\ &= -8 \end{aligned}$$

$$\begin{aligned} & 3(-4) + (-5)^2 \\ &= 3(-4) + (-5)(-5) \\ &= -12 + 25 \\ &= 13 \end{aligned}$$

4) Adding and Subtracting Fractions

$$\begin{aligned} & \frac{9}{10} - \frac{3}{10} \\ &= \frac{6}{10} \\ &= \frac{3}{5} \end{aligned}$$

$$\begin{aligned} & \frac{9}{10} + \frac{3}{5} \\ &= \frac{9}{10} + \frac{3}{5} \times \frac{2}{2} \\ &= \frac{9}{10} + \frac{6}{10} \\ &= \frac{15}{10} \div 5 \\ &= \frac{3}{2} \end{aligned}$$

$$\begin{aligned} & \frac{2}{3} \times \left(\frac{-5}{6} \right) \\ &= \frac{-10}{18} \\ &= \frac{-5}{9} \end{aligned}$$

$$\begin{aligned} & \frac{4}{5} \div \frac{3}{4} \\ &= \frac{4}{5} \times \frac{4}{3} \\ &= \frac{16}{15} \end{aligned}$$

Part B

5) Solve - Easy

$$-5y = 65$$

$$\frac{-5y}{-5} = \frac{65}{-5}$$

$$y = -13$$

$$g - 9 = 22$$

$$g - 9 + 9 = 22 + 9$$

$$g = 22 + 9$$

$$g = 31$$

$$-6 = \frac{n}{-4}$$

$$-4 \cdot -6 = \frac{n}{-4} \cdot -4$$

$$+24 = \frac{-4n}{-4}$$

$$+24 = n$$

$$n = 24$$

$$3m + 14 = -4$$

$$3m + 14 - 14 = -4 - 14$$

$$\frac{3m}{3} = \frac{-18}{3}$$

$$m = -6$$

$$\frac{5}{6}w = -35$$

$$6 \cdot \left(\frac{5}{6}w\right) = (-35) \cdot 6$$

$$\frac{30}{6}w = -210$$

$$\frac{5w}{5} = \frac{-210}{5}$$

$$w = -42$$

$$3 - 6n = 5n - 41$$

$$3 - 3 - 6n = 5n - 41 - 3$$

$$-6n = 5n - 44$$

$$-6n + 44 = 5n - 44 + 44$$

$$-6n + 44 = 5n$$

$$-6n + 6n + 44 = 5n + 6n$$

$$\frac{44}{11} = \frac{11n}{11}$$

$$4 = n$$

$$n = 4$$

6) Expand the following

$$-4(x - 3) =$$

$$-4x + 12 =$$

$$-4x + 12 - 12 = -12$$

$$\frac{-4x}{-4} = \frac{-12}{-4}$$

$$x = 3$$

$$5(3 - x) =$$

$$15 - 5x =$$

$$15 - 5x + 5x = +5x$$

$$\frac{15}{5} = \frac{5x}{5}$$

$$3 = x$$

$$x = 3$$

$$-2(-7 - 3x) =$$

$$+14 + 6x =$$

$$+14 - 14 + 6x = +14$$

$$\frac{6x}{6} = \frac{-14}{6}$$

$$x = -\frac{14}{6} \text{ Reduce}$$

$$x = -\frac{7}{3}$$

Part C

7) Evaluate - Difficult

$$(3-5)^3 \div (6-8)^2$$

$$= (-2)^3 \div (-2)^2$$

$$= (-2 \times -2 \times -2) \div (-2) \times (-2)$$

$$= (+4 \times -2) \div +4$$

$$= -8 \div +4$$

$$= -2$$

$$(2^3 - 3^3) - (-16) \div (-8)$$

$$= (8 - 27) + 16 \div -8$$

$$= -19 + 16 \div -8$$

$$= -3 \div -8$$

$$= \frac{-3}{-8}$$

$$= +\frac{3}{8}$$

$$3\frac{2}{7} - 2\frac{1}{2}$$

$$= \frac{2}{2} \times \frac{23}{7} - \frac{5}{2} \times \frac{7}{7}$$

$$= \frac{46}{14} - \frac{35}{14}$$

$$= -\frac{11}{14}$$

$$\frac{1}{2} - \frac{2}{5} \div 2\frac{1}{5}$$

$$= \frac{1}{2} - \frac{2}{5} \div \frac{11}{5}$$

$$= \frac{1}{2} + \left(-\frac{2}{5} \times \frac{5}{11} \right)$$

$$= \frac{1}{2} + \left(-\frac{10}{55} \right)$$

$$\frac{55}{55} \times \frac{1}{2} - \frac{10}{55} \times \frac{2}{5}$$

$$= \frac{55}{110} - \frac{20}{110}$$

$$= \frac{35}{110} \text{ Reduce } \div \frac{5}{5}$$

$$= \frac{7}{22}$$

8) Solve - Difficult

$$5(t+3) = 4t$$

$$5t + 15 = 4t$$

$$5t + 15 - 15 = 4t - 15$$

$$5t = 4t - 15$$

$$-4t + 5t = (4t - 4t) - 15$$

$$t = -15$$

$$3(h+2) = 11 - 2(h-5)$$

$$3h + 6 = 11 - 2h + 10$$

$$+2h + 3h + 6 = 11 - 2h + 2h + 10$$

$$5h + 6 = 11 + 10$$

$$5h + 6 - 6 = 11 + 10 - 6$$

$$\frac{5h}{5} = \frac{15}{5}$$

$$h = 3$$

$$6 \times \left[\frac{a+2}{6} + \frac{a-1}{3} \right] = 7 \times 6$$

$$a + 2 + 2a - 2 = 42$$

$$\frac{3a}{3} = \frac{42}{3}$$

$$a = 14$$